

Claims

I claim:

1. An air spring sleeve comprising:

an elastomer body;

5 a first cord embedded in the elastomer body, the first cord wound with a first helix angle with respect to a sleeve centerline;

a second cord embedded in the elastomer body, the second cord wound with a second helix angle with respect to
10 a sleeve centerline;

the first helix angle and the second helix angle describe a differential helix angle;

the first cord is disposed inward of an airspring interior;

15 the second cord is disposed outward of an air spring interior as compared to the first cord; and

the first helix angle is greater than the second helix angle.

20 2. The air spring as in claim 1, wherein the differential helix angle is in the range of approximately 0° to 5°.

3. The air spring as in claim 2, wherein the differential helix angle is in the range of approximately 0° to 2.5°.

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4. An air spring sleeve comprising:

an elastomer body;

a first cord embedded in the elastomer body, the first cord wound with a first helix angle with respect to a
30 sleeve centerline;

a second cord embedded in the elastomer body, the second cord wound with a second helix angle with respect to a sleeve centerline;

the first helix angle and the second helix angle
5 describe a differential helix angle;

the first cord is disposed inward of an airspring interior;

the second cord is disposed outward of an air spring interior as compared to the first cord; and

10 the sleeve having a torsional strain less than 0.5°.

5. The air spring as in claim 4, wherein the differential helix angle is in the range of approximately 0° to 5°.

15 6. The air spring as in claim 5, wherein the differential helix angle is in the range of approximately 0° to 2.5°.

7. An air spring sleeve comprising:

an elastomer body;

20 a first cord embedded in the elastomer body, the first cord wound with a first helix angle with respect to a sleeve centerline;

a second cord embedded in the elastomer body, the second cord wound with a second helix angle with respect to
25 a sleeve centerline;

the first helix angle and the second helix angle describe a differential helix angle; and

the first helix angle is greater than the second helix angle.

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8. The sleeve as in claim 7, wherein:

the first cord is disposed inward of an airspring interior; and

the second cord is disposed outward of an air spring interior as compared to the first cord;

9. The air spring as in claim 8, wherein the differential helix angle is in the range of approximately 0° to 5°.

10. The air spring as in claim 9, wherein the differential helix angle is in the range of approximately 0° to 2.5°.

11. The air spring as in claim 7, wherein the cord comprises aramid.